

cooperatively, suggesting that they were a mated pair migrating together. Other observations were of single birds. Most (75%) peregrines were seen near or over large (20–100 ha), semi-brackish to saline wetlands. Four observations were of peregrines catching or feeding on prey including an American Coot (*Fulica americana*), Green-winged Teal (*Anas carolinensis*), White-rumped Sandpiper (*Erolia fuscicollis*), and Black Tern (*Chlidonias niger*). Another peregrine was observed stooping and scolding a nesting pair of Great Horned Owls (*Bubo virginianus*), as reported by C.S. Houston and K.A. Wylie (1985, *Blue Jay* 43:42–43). Peregrine Falcons rarely are observed in autumn on this refuge.

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A NORTHERN GOSHAWK NEST IN THE TUNDRA BIOME

The holarctic Northern Goshawk (*Accipiter gentilis*) is a bird of the forest and typically nests in a large tree in mature forest (P.S. Johnsgard 1990, *Hawks, eagles, and falcons of North America*, Smithsonian Inst. Press, Washington DC). It has been encountered well north of the treeline in Alaska in winter or early spring (L. Irving 1960, *Birds of Anaktuvuk Pass, Kobuk, and Old Crow: a study in arctic adaptation*, U.S. Nat. Mus. Bull. No. 217; A.M. Bailey 1948, *Birds of arctic Alaska*, Popular Series No. 8, Denver Mus. of Nat. Hist., Denver, CO) and nests in “white willow thickets” in the “forest-tundra” of the Soviet Union (G.P. Dementiev and N.A. Gladkov [EDS.] 1951, *Birds of the Soviet Union*, 1966 Israel Program of Science Translations, Jerusalem, Israel). However, nesting has not been previously reported for the tundra regions of North America.

We discovered a Northern Goshawk nest on 25 June 1985 145 km north of treeline at the confluence of the Oolamnavik and Colville Rivers on the North Slope of Alaska (68°59'N 154°02'W, 150 m elevation). The nest contained one young about 15 d old and was defended by two goshawks in adult plumage. The young was flying well during the last visit to the nest on 25 July.

The nest was located 3 m up in a 5 m tall Feltleaf Willow (*Salix alaxensis*) in a willow stand covering about 100 ha. The tall shrub community of willows and occasionally Balsam Poplars (*Populus balsamifera*) is associated with large river drainages in the northern foothills of the Brooks Range. The numerous discontinuous stands of willows along the Colville River are surrounded by a vast expanse of open tundra. The willows at the confluence of the Colville and Oolamnavik Rivers are among the tallest (up to 8 m) in the region (B. Kessel and T.J. Cade 1958, *Birds of the Colville River, Northern Alaska*, Biol. Paper No. 2, Univ. of Alaska, Fairbanks, AK).

Peregrine Falcons (*Falco peregrinus*) nested from 1980 to 1984 on a small bluff about 100 m from the nest site used by the goshawks in 1985. During 1985, the peregrines, individually identifiable by color bands, moved to a previously vacant bluff 2 km upriver. Normal movement by peregrine pairs between bluffs in this area is rare (pers. observation). The goshawks possibly displaced the peregrines from their usual nesting site. Goshawks were not found again during field searches of this area between 1986 and 1991.

Northern Goshawks occasionally hunt in open areas adjacent to woodlands (S. Cramp and K.E.L. Simmons [EDS.] 1980, *Handbook of the birds of Europe, the Middle East and North Africa* Vol. 2, Oxford Univ. Press, Oxford, U.K.) However, goshawks usually hunt from a perch (R.S. Palmer [ED.] 1988, *Handbook of North American birds*, Vol. 4, Yale Univ. Press, New Haven, CT) and when hunting they frequently change perches (R.E. Kenward 1982, *J. Animal Ecol.* 51:69–80). The home range of a pair of goshawks, therefore, often includes numerous hunting perches as well as a suitable nesting site. The occurrence of isolated stands of willows and Balsam Poplars along major rivers of the North Slope provides at least marginal nesting habitat for Northern Goshawks in the tundra biome. The marginal quality of this habitat is suggested by the use of the territory for only one year and the production of only one young.

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